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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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CLEVELAND, O.

Judge Ricks, of the United States District Court, gave a judgment against the cargo of the schooner Ganges, on Tuesday morning, to John Oades and other libelants in the sum of $922 82. The cargo consisted of 648 tons of iron ore, the property of the Milwaukee Iron Mining Company, James Dalliba and J. J. Tracy.

Capt. D. P. Nickerson, died on Tuesday at the age of eighty-three years. A few years ago he was one of the best known insurance adjusters on the lakes. Earlier in life he sailed various vessels for a considerable period, and later had charge of the affairs of the Harkness estate. The news of his death caused general regret among the local vessel men, to nearly all of whom he was well known.

The tug W. L. Scott' for Erie, with the Scott Co.'s new coal lighter Mansfield, was all ready to leave port on Wednesday afternoon, a powerful McMyler derrick and 125 three-ton buckets completed her outfit.

The steamer John B. Lyon is expected to come out of the Ship Owner's dry-dock to day. She is now in the Gilchrist fleet.

The report that F. W. Wheeler & Co. had secured a contract from Cleveland owners to build a new steel steamer is correct in the main, although no new keel will be laid for her, as the Gratwick syndicate, whose fleet is managed by Mitchell & Co., of Cleveland, will take over a new steel steamer now in process of construction at the Wheeler yards. This new vessel is of the usual large dimensions of modern tonnage and will be equipped with the latest and best.

The following are the names of steamers and their home ports whose certificates of inspection expire during the next seven days. July 1st Olympia, Lorain; July 2nd Winifred, Riverbank; July 3 Loretta Englesbe, Cleveland; July 6 Crown Prince, Cleveland and the Elk, Cleveland; July 7 John P. Manning, Harbor, O.

The Globe Iron Works Co., will launch from their yards on Saturday at 3 p. m. the steel steamer Schuylkill built to the order of the Erie & Western Transportation Co., (Anchor Line,) Buffalo, N. Y. The Schuylkill, is one of the so called "straightbacks"—(steamers having no sheer) and has been designed especially for the package or general cargo trade.

The schooner Northwest, Captain Ward, lost her rudder at the head of Lake Erie, in the southwest gale on Monday night. She was towed here and will be docked in the Ship Owners Drydock for a new rudder and be searched up.

Major Cooper Overman, who was court martialed last February on a charge of misapplication of funds of the corps of engineers, has voluntarily resigned from the army. The amount involved in the trial was less than $500, and was the first of the kind to be brought against any officer of the corps. The court found that Major Overman did not convert the money to his own use, and sentenced him to a reprimand in general orders.

The Detroit and Cleveland Steam Navigation Co. will run excursions to Detroit on July 2 and July 3, the steamers leaving this port each evening at 10 o'clock. Excursion tickets will be good on the boat leaving Detroit at 11 p. m. July 4. An excursion steamer will run to Put-in-Bay on July 4 and on the same day three lake rides will be given.

The steamer H. A. Tuttle arrived in port Tuesday. She had the crew of the sunken schooner F. A. Morse aboard. Frank Glende, one of the crew, was injured in the collision with the steamer Pringle. He was removed to Lakeside hospital.

The city should obtain specifications and contract for another fire boat at the earliest opportunity. There is no assistance of greater value than the service which a fire boat can render to all property within easy distance of the river and harbor and a second boat is the most valuable economical addition which could be made.

Congressman V. A. Taylor, returned to Washington on Wednesday, after spending a few days at his home in Bedford. He reports the Lake end of the river and harbor bill in good shape and is confident that the aids to navigation and improvements as now scheduled will pass. Congressman Taylor speaks in high terms of his colleague Mr. Tom L. Johnson, also Senators, McMillan, of Michigan, and Brice, of Ohio, who have done noble work for the lakes in the present Congress. Mr. Taylor is somewhat modest in speaking of his own work, but his masterly effort in excursioning legislators over the lakes last summer, his late advocacy of the 20 foot channel and the liberal sum appropriated for the Cleveland breakwater are evidences of his having "done his duty."

A CONTRACT FOR THE UNION DRY DOCK CO.

Special Correspondence to The Marine Record.

BUFFALO, N. Y.—The Union Dry Dock Co. have secured a contract to build for Buffalo parties, whose names are withheld, a steamer dredge, six scows and a tug, the whole to cost $75,000. It is understood that the owners of the new outfit will compete with Hingston & Woods, who have long been the leading dredging contractors of the lower part of the Great Lakes.

The schooner William Home had a narrow escape from being wrecked last Tuesday. With a 40 mile gale blowing, she started for Tonawanda in tow of the tug S. W. Gee, her tow line parted and she went on the inside reef, near the Reading coal trestle. It was with much difficulty that the life saving crew got a line to the tug again, and with the assistance of the tug Cheeney was pulled safely behind the breakwater. While on the reef the captain of the Home, thinking his chances of getting off in the sea that was running was small, bored four holes in the bottom of his vessel to scuttle her and keep from pounding. When finally towed into safe waters the Home had 16 inches of water in her hold. She went into dry dock the afternoon of her release.

Through a typographical error THE MARINE RECORD last week was made to say that over $600 had been raised in Chicago for the widow of the late John L. Schrader. It should have read "On 'Change."

Vessel owners made a determined effort the latter part of last week to raise coal rates to Lake Michigan but enough boats came in Sunday and Monday to temporarily relieve the demand for tonnage by the shippers, and no advance was secured. There are not enough vessels so far this week to supply the demand, and rates, though unchanged, are strong.

The Erie Canal is doing but little business, and a fleet of about 100 boats are quartered in the Erie Basin waiting for better freights. The fleet is liable to stay there most of the summer. Rates are dull at 2¼ cents for wheat, 2⅛ cents for flaxseed, 2 cents for corn and 1½ cents for oats to New York. Lumber rates are $1.90 to New York and $1.40 to Albany.

Tuesday's blow scared out most of the excursion steamers, and the only one that made a trip was the Pearl to Crystal Beach, where she succeeded in badly smashing the dock and breaking her guard rail, without being able to make a landing.

Mr. A. J. Mallon, of the firm of Galvin, Mallon & Boland, was married Tuesday morning to Miss Louise Perot, of this city. The bride and groom at once started on a wedding journey down the St. Lawrence.

Most of the vessel men here expressed much satisfaction at the announcement that the Lake Carriers Association had taken up the matter of the Cyclone Elevator, and give as their belief that the "floater" will before long cease to be a menace to navigation in the harbor.

The steamer John B. Lyon will be a handsome boat when she comes out with her new pole spars and other improvements.

Heavy rains caused a quite troublesome current in Buffalo River Monday night, and it took four tugs to handle one large steamer. Buffalo tug men are glad to admit, however, that in currents of this character Buffalo does not hold a candle to Chicago.

Capt. Maytham declines to give the price paid for the tug Medina, except to place it between $5,000 and $15,000. About $10,000 is perhaps a fair estimate of the exchange.

The schooner Fassett, towing behind the steambarge Curtiss and drawing but 11 feet 3 inches to the steamer's 12 feet 6 inches, struck bottom in Niagara River, last week, hard enough to make her leak badly. She was dry docked here. It is supposed the schooner took a sheer in the swift current.

As predicted in last week's RECORD, the strife between the Lumber Shovers Union and the stevedores resulted in a reduction of unloading rates, which the vessel owners found very little fault with. No violence is preached by either side, and it seems a case of the best man wins. Both are confident of success, and but little delay is experienced in getting boats out.

The fine imposed upon ex-shipping master W. H. Boyd for shooting Michael O'Brien was reduced from $1,000 to $500, by Judge Seaver, and the amount paid. Boyd left for Cleveland last Saturday.

The steamer J. C. Pringle, which came to grief off Alpena this week, made quite a towing record, a few days before the casualty, after unloading her lumber at Buffalo, the steamer went down to Tonawanda and towed all three of her big barges, the Harrison, Sunshine and Sweetheart, up the swift current of Niagara river to the coal dock, where they loaded.

The Whaler Progress, expected here was purchased by a company of private individuals in Chicago who will exhibit her in the interest of the fishery commissioners at the Columbian Exposition in 1893. The company are represented by Mr. Crane, of Chicago, who is making the voyage from New Bedford on her.

A "GRACE DARLING."

Senator Allen, of the State of Washington, has received from the Secretary of the Treasury, for transmission to a woman in his State a magnificent gold medal engraved in a circle around the face with the words: "In testimony of heroic deeds in saving life from the perils of the sea;" and on the face of the shield, with the words in small characters, "To Mrs. Martha White, for heroic deeds in rescuing three men from drowning." On the reverse side are the words, "United States of America. Act of Congress, June 20, 1874."

The story of the remarkable action that has called forth this recognition from the government is sent out in a letter from the Secretary of the Treasury which accompanies the medal, in which, after reviewing the facts of the rescue of three shipwrecked sailors of the British ship Ferndale, he says: "Such achievements as these are usually wrought by strong men and are then justly considered worthy of great praise. Accomplished by a woman they attain the highest degree of heroism, and are entitled to and command extraordinary admiration. It is said that you have been accustomed to frequent the beach during dangerous weather in quest of such errands of mercy as the misfortunes of the sea might lay in your power—a signal evidence of those high moral qualities, unfailing courage, and a spirit of generous self-sacrifice, without which no man or woman could have achieved your heroic work." The British Government are unusually courteous in acknowledging such cases as the foregoing, and the heroine will no doubt also receive recognition from that country.

In this connection we recount the services of Grace Darling, who was, perhaps, the first woman of this country to acquire a world wide reputation for maritime honors, and on the fiftieth anniversary of her death, the 20th of next October, the English people purpose to raise a national memorial to her. She died of consumption only four years after her heroic action in aid of the people on the steamer Forfarshire. She was born November 24, 1815, on the coast of Northumberland. Her father was keeper of the Longstone lighthouse on one of the most exposed of the Farne islands, and on the night of Sept. 6, 1838, the steamer, on her way from Hull to Dundee, was wrecked on a crag near by. Of fifty-three persons on board thirty-eight perished, including the captain and his wife, and daylight showed the survivors clinging to the rocks and remnants of the vessel. Against the remonstrances of her parents, and with almost certain death in prospect, Grace launched a boat to aid them. Her father, inspired by her heroism, joined her, and by the most skillful management, they got nine persons to land. The other six were saved by other means. The name of Grace Darling became famous, and presents and honors were showered upon her. A public subscription of £700 was raised, and Grace was urged to accept a better position in life. But she declined to leave her parents, and died at the lighthouse, Oct. 20, 1842.

Ida Lewis is sometimes spoken of as the Grace Darling of America, but, far more fortunate than her English prototype, she lives to enjoy her honors modestly, and is now Mrs. Wm. H. Wilson, of Black Rock, Conn. She was born in Newport, R. I., in 1841, and from childhood was noted for skill in managing a boat and in swimming, and other exercises requiring strength and daring. Her father kept the Limerick lighthouse, in Newport harbor, and at the age of eighteen she saved four young men whose boat had upset in the harbor. A little later she saved the life of a drunken sailor, whose boat had sunk. In 1867 she rescued three men, and in 1868 a small boy who had clung to the mast of a sailboat from midnight till morning. In 1869 she and her brother, Hosea, rescued two sailors whose boat had capsized in a squall. Soon after she married, and her career at the lighthouse ended.

THE BAKER SUB-MARINE BOAT.

Commodore William A. Folger, chief of the bureau of ordinance at Washington, has given directions to W. Scott Sims, the celebrated inventor, whose name is best known in connection with the Sims Edison Torpedo boat, to make experiments with the submarine boat invented by George C. Baker, and built by the Detroit Boat Works, Detroit Mich. Acting upon the recommendation of Commodore Folger, Mr. Sims visited Detroit for an interview with Mr. Baker, and to inspect his submarine boat. He found her undergoing repairs rendered necessary by the recent explosion of the storage battery cells, and, therefore, did not have an opportunity of witnessing the practical workings.

"Commodore Folger" said Mr. Sims, "is greatly interested in the Baker boat and considers that the conjunction of the submarine craft with my torpedo will furnish all the requirements for a perfect destroyer. The combination furnishes all the deadliness, together with a minimum risk which forms the ideal element of assault. In Mr. Baker's boat I feel confident that the problem has been satisfactorily solved. He has the first boat that has been made to ride on an even keel. The submerging powers depend to a large extent on the propellers, she is navigable, easily controlled and of a powerful structure."

Mr. Baker says he has decided to take the boat to Newport by way of New York through the Erie Canal as soon as the damages from the recent explosion of chemicals are repaired, the federal authorities desiring to give it an official test.

CONSTRUCTION work on the West Superior dry-dock of the American Steel Barge Co. is being greatly delayed by the lack of material. A large amount of red oak timber, which the company had planned to receive was washed away by the late floods in Kentucky and Tennessee. It will probably be October before the dock is completed.

MR. ED. STOKES' steam yacht Fra Diavolo, had a Roberts water tube boiler put in her this spring at New York.

MILWAUKEE GRAIN TRADE.

Secretary Langson, of the Milwaukee Chamber of Commerce in his annual report for the year 1891, shows that the grain trade of Milwaukee, which a few years ago was regarded by many to be hopelessly declining, has nearly regained the volume of its highest period of prosperity, and bids fair to far eclipse that in the near future.

It is true the city has not recovered lost ground as a shipping market for wheat, but it is now gaining in that respect under favorable influences than have prevailed for some years past, while the growth of the milling industry has largely increased the local demand for that commodity. In the production of flour it has taken second place, manufacturing in 1891, 1,826,758 barrels. The total receipts of grain at Milwaukee in 1891 were the largest recorded in 16 years, and with three exceptions the largest since the Chamber of Commerce was organized, thirty-four years ago. There were received at Milwaukee, during 1891, 10,846,495 bushels of wheat, 11,492,770 bushels of corn, 4,799,684 bushels of oats, 10,001,293 bushels of barley 2,021,477 bushels of rye, making a total of 28,878,210 bushels of grain received on the market last year.

In estimating the comparative volume of the commerce of Milwaukee the total bank deposits afford a reasonable close approximation to that. These for 1891 show an increase of $17,884,000 over the business of 1890, the latter notable in Milwaukee at least as a year of 'booms.' It is also observed that since 1885 the volume of business has shown an uninterrupted increase from year to year, that of 1890 being the most decided.

OBSTRUCTIONS LOCATED.

The United States lake survey party, who have been located at Colchester, Ont, Lake Erie, for the past few weeks under command of Lieut. Richie, have succeeded in locating the obstruction in Lake Erie, due south from Hackett's dock, and one mile from shore. It was found to be half a mile in length and a quarter of a mile in width, as far as they have gone and extends toward the south-east. The bottom is composed of sand, clay, and large boulders, some of which stand 6 feet from the bottom, 12 feet 6 inches of water over them being the least found yet. The obstruction found last summer on the survey ordered by the Vessel Owners' Association when Capt. George P. McKay; Secretary, and Capt. John Swainson of THE MARINE RECORD, went over the ground was probably a large boulder such as is being found at almost every other sounding taken in that locality. This survey must be considered of vital importance to the shipping interests of the Great Lakes, as it will place upon record a most dangerous obstruction almost in midchannel of Lake Erie, and it is hoped the Government will appropriate sufficient money to enable work of this kind to be extended in the future. As it stands at present all work of this kind must stop June 30 for lack of funds.

LAUNCH OF THE CHICORA.

The Detroit Dry Dock Co. launched from their yards on Saturday afternoon the handsome wooden passenger steamer Chicora, built to the order of Graham & Morton, of Chicago.

A large number of people witnessed the launch, which was ably conducted by Superintendent Parker. The Chicora was pronounced the finest wooden passenger boat ever built in Detroit, the late D. & C. Line steamers being composite and steel built. The interior work on the cabins is now well advanced, but the boilers and machinery are yet to go in. The new steamer leaves for Chicago and takes her place in the Graham & Morton Line between that city and St. Joseph, about August 1st.

THE NORTHERN PACIFIC LINE TO ASIA.

On June 16 the Directors of the Northern Pacific Railroad ratified the contract with the Northern Pacific Steamship Co. for a trans-Pacific service. This is an exclusive contract, binding each party thereto to work exclusively in each other's interest for a period of ten years. The Northern Pacific Steamship Co., of which Mr. William G. Pearce, of England is President, will run three steamers between Tacoma and Hong Kong and Yokohama. The service at first will be monthly. After a while it is hoped to make it tri-monthly. The names of the three boats are the Parthia, the Bothnia and the Tacoma. They have been in service with the Cunard and the Guion Steamship Line. The Parthia left Hong Kong June 1 on her first trip under the contract.

WHALEBACK LAUNCHES.

As previously announced in our issue of the 23rd, two whaleback steamers were consigned to the water at the shipyard of the American Steel Barge Co., at West Superior on Saturday afternoon. They were christened the Pillsbury and Washburn, in honor of the flour magnets of Minneapolis. The new boats will run in connection with the "Soo" line, which is owned by the Canadian Pacific. They are especially designed for the flour trade and will carry 28,000 barrels of flour, equal to 2800 tons, on every sailing from Gladstone. The steamers are 322 feet in length, 42 feet beam, and 25 feet deep, and the net tonnage is 1,571.65. They differ in appearance from the other whalebacks afloat only in that they have gangways. A large number of visitors were at the launch.

TREATISE ON STRUCTURAL STRENGTH OF IRON AND STEEL SHIPS.

BY JOSEPH R. OLDHAM, N. A., CLEVELAND, O.

A few years ago a well known enterprising shipowner of this city, commissioned the writer to take the initial steps for purchasing the "Great Eastern" steamship. It was then his intention to have her razeed, and brought over to this country. This commission came into my hands rather late, for when I inquired about this steamer for purchase, the work of demolition had advanced too far for our purpose, and so the vessel degenerated into a scrap heap instead of becoming American property. Now it was the idea of reducing the depth of the "Great Eastern" by one or two decks that has caused me to refer to her, for she was the only very long steamer I ever saw that could be largely reduced in depth, and yet retain an average factor of safety when subject to what I shall try to clearly explain as "an afloat" longitudinal stress. It has been stated, and I accept the statement as fact, that that ship might have been used to span such a river as the Cuyahoga at its widest part without injury to the ship or inconvenience to the river. Of no other very long ship could this correctly be stated, this vessel was in truth a huge beam or girder. It occurred to me that the best way to compensate for reduced height of side was to fit a girder on the top side as illustrated in the accompanying sketches. Whether our channels be deepened or not much greater length will be desired for our steamers, for large increase or breadth is not practicable with due regard to general economy. Such great heights as now obtain being worse than useless, razeeing must follow, and as ships require large increase of scantlings when the breath is much in excess of twice the depth, it leaves us no alternative, (if we require light ships, which is only another description of good carriers) but to advance in the direction of greater length in proportion to the average breadth of our present large lake steamers.

In the design for my screw collier I have advanced to sixteen times the extreme depth amidships, and to make sure that this vessel will be strong enough longitudinally, I have carefully calculated her moment of inertia and greatest hogging moment by the annexed table A, as shown, and so that all may grasp this simple calculation I shall shortly quote Mr. Mansel's language with reference to the strength of beams.

The experienced naval architect will so distribute and combine the materials most suitable for the construction of the ship, so as to resist fracture or changes of form. Before he may accomplish this with the least possible weight of material, he must have an intelligent appreciation of the nature and force of the stresses to be provided against, otherwise the heaviest materials may be concentrated where severe strains never occur, or, on the other hand, scantlings may be reduced in the very locality where the greatest strength is required.

Mr. William Fairbairn wrote a paper on the comparative strength of iron ships, in which he endeavored to show that vessels, whether afloat or on shore, are governed by the same laws of strain as simple built beams, such as tubular bridges. In this paper the writer endeavors to prove more than we believe is warranted by the results we have witnessed from ships having been under severe strain, but there can be no reasonable doubt that vessels are liable under certain conditions to stresses such as that to which loaded beams are subject, and in a following paper we will look upon the ship as being liable to such strains.

Suppose a vessel to be loaded so that she floats stably immerged to 7-10 of her depth moulded, the displacement up to this draft represents the total weight of hull and cargo, then the centre of gravity of the loaded vessel, and of the displacement being in the same vertical line, assume that the point of the keel intersected by this line be brought over a sharp edged rock, and that the water be withdrawn, leaving the vessel poised high and dry. In the present pages let us suppose, as in fact is commonly the case, that the keel floors, frames and plating of the bottom are strong enough to resist the stress thus thrown upon them. Now, if we knew the weight of the loaded hull, and the distance of the centres of gravity of the forward and after bodies respectively from the point of support, the product of half the weight by the distance of the centre of gravity from the centre would be the exact moment of the force tending to rupture the top side of the vessel, but, as it is always difficult to obtain the centre of gravity of the loaded ends of a vessel, let us assume that the centre of gravity of either is situate at about one-fifth of the length of the vessel on load water-line from mid length; and if we suppose one-half the total displacement at each end, the product $\frac{1}{2}$ D. X 1.5 L = 1.10 D. L. D. and L. representing the displacement and length of vessel respectively.

When a beam is subjected to a cross strain we find the material resisting through being extended while on the opposite (B), it resists through being compressed; one particular surface, as we proceed from the top to the bottom, appears to offer no resistance, being neither extended nor compressed, its section (N), as it appears on the side of the beam, has been named the neutral surface. Previous to straining the beam, had we drawn two lines a b and a b paralell to each other and vertical, after being strained, we would find them converging towards the compressed side, as shown, and, further, it would be found that the lines, though converging, remain straight, and that the original distance between the lines will be found at the middle of the depth of the beam if of uniform thickness.

This tends to show that the extensions and compressions are directly proportional to their distance from the neutral axis. This and similar experiments tend to prove that for all practical purposes, the strained section of any combination of malleable iron plates may be considered subject to the following principals:

1. The neutral axis passes through the centre of gravity of the section.

2. The same force is required to extend as to compress a given section of iron by the same fraction of its length.

3. The extension and compression at a given point is directly as its distance from the neutral axis, and hence, the force exerted by a small portion of the area at that point is directly as the area considered, multiplied by its mean distance from the neutral axis.

The force of a small portion of the section given multiplied by its distance from the neutral axis, is the amount of that small area, or, in other words, it is the leverage which that small portion opposes to the leverage tending to rupture the entire section.

Gentlemen, such simple calculations as these may become both interesting and instructive to practical shipbuilders, and for those who desire to study the subject closely, I may refer them to a paper by the late professor Jenkins, and to Mr. W. H. White, F. R. S. To illustrate how very useful this has been to me, I may tell you that when I was designing this steamer, I placed that girder almost like it is now, and looking at it in a practical way, I thought it represented ample strength for the gunwale, but when tested by these figures, it was found wanting in a high degree, this brings out the statement that you will find it a difficult problem to make a serviceable, strong and shallow steamer fit to carry even four thousand gross tons of cargo on 14 feet draft of water over these lakes, without resorting to the overhead arch, such as I illustrated in a local paper about a year ago, for by these calculations I found that large and heavy as that girder was, it was then connected to the design for a hull that could only have occupied the lowest position as regarding longitudinal strength amongst the vessels named in the annexed paper.

So I immediately added a thick doubling plate to the top plate, and increased the plates and angles connecting the same to the turn-over plate in a proportionate ratio, and now it may do.

Mr. Fairbairn proposed plating over the upper deck beams at the sides of the hatches, so as to make the section of iron at the deck equal to the section at the bottom, though all our deep steamers would be the better for two steel decks. I do not mean that such are required to resist the longitudinal vertical strains to which ships are subject. but rather to resist panting and racking strains resulting from external pressure and consequent reaction. I must now ask you to dismiss from your minds the idea of the fixed beam or girder for the moment, and look at the structure of a ship, in a more general way as I intend to prove to you that, for the purpose of strength, we are in the habit of placing, our one metal deck, (when only one is fitted) in deep steamers, on the wrong tier of beams, you know that even in still water, there is great pressure on the sides (this amounted to about 4,000 tons in the "Great Eastern" as well as on the bottom, tending to collapse the structure, the bottom, or rather, (the combination of bottom and double bottom) has to put forth, but a little of its strength to resist such pressure, but when we come to the sides, and particularly the top sides, we do not generally find such surplus strength to resist this pressure. When the vessel rolls over on to her beam ends, her sides very largely assume the normal position of the bottom when a great portion of the total weight of hull and cargo must be borne by the sides of the vessel, now when there are no metal decks, and but poor stringer plates, the beams may bend and twist, or buckle, and the whole upper works become strained, for remember that when there is external pressure and compression on one side, there will be corresponding internal pressure on the opposite side, the difference in pressure alone being frequently as much as 20 to 1, and the righting moment perhaps 15,000 foot tons, and with such stresses alternating several times per minute, it may be, it should seem that the sectional area of deck plating ought not to be so much less than the external bottom platings as is too commonly the case. In these deep but shallow draft steamers, you will observe that the severe pressure on the side may seldom, if ever, reach the upper deck beams with any intensity if there be two decks, and so if the main deck only be made strong and the upper deck and top-sides be well connected to it, by deep, though thin, web plates, there need be no straining of the upper decks for the main deck will receive the main thrust and pull.

Now I believe this to be so over the greater portion of what is practically the mid-ship body of our steamers, but when we approach the ends, (particularly the after end), as our steamers are constructed, the physical conditions connected with buoyancy and weight are changed, and I aver that the stresses we ought to anticipate most carefully will not attack the mid-ship body at all, but will be found where the great weights are unbalanced, for instance about the location of the fore end of the boiler house, and let me add that straining in these ports is more likely to occur when the steamer is light than when loaded, for the discrepancy between buoyancy and lead will then be the greatest, is it not your experience that many more of our steamers complain at this nondescript point part boiler room, part hold than in any other locality, and certainly more frequently there than about the position of the centers of gravity and buoyancy.

Further I may say that when a ship rolls onto her beam ends, the angle forming the junction between the top sides and deck endeavors to alter its form, the angle on the immersed side would become more acute and that on the immersed side more obtuse, to avoid this straining action I have for a long time recommended that much broader web-plates be fitted between the main and upper decks, indeed I would make the web-frames just the reverse of what is common, viz: broader at the top than at the bottom.

It would seem that most of the shallow places on which our lake steamers ground, is rocky, or at least very hard and solid ground. This being so, in my opinion it would be worse than useless to attempt making the bottoms of steamers strong enough to withstand ordinary grounding, without suffering material injury, and if this be so, I think the best thing will be to arrange the construction of ships bottoms, so that they may be quickly and cheaply repaired, which I believe can be done without any sacrifice of strength.

With this object in view, I propose to construct the bottom of comparatively small pieces, for instance in my novel steamer (which is 316 x 40 x 20, I make the longitudinals each 18 x 7-16) spaced 4 feet apart, one will be rivitted to the outer bottom, and one to the inner bottom, the connection between the two being affected by vertical angles and bracket plates spaced 3½ feet apart, these bracket plates will, of course, be connected by thwartships, angles to the upper and lower bottoms, the latter angles taking the place usually occupiedby the transverse frames.

I need not weary you with any further description of my system, as the illustrations annexed should make my proposed arrangement fairly clear, as regards the bottom plating, which is really according to my experience, the most interesting feature in our steamers (to an underwriter at least) let me explain that instead of lapping one stroke of plating over two others, I plate the bottom flush, which gives edge to edge plating, this necessitates a narrow fore and aft strap, which will be single riveted,some people may fear this, but let me briefly state that in all my experience I have never seen any evil results from single riveted longitudinal seams in ships, and I have often examined ocean vessels of twenty or thirty years of age with such seams single rivetted, indeed the "Great Eastern" was only single rivetted in longitudinal seams, and such showing no indications of straining, but were perfectly eligible for continuation in the highest class.

(To be Continued.)

A FLOATING CHURCH.

In Brooklyn, N. Y., a dismantled bark is moored to the stringpiece of the dock by heavy chains. Upon her main deck forward has been constructed a chapel, and within the six pillars that support the roof hangs a large bell which is used to call together the congregation of sailors from the surrounding shipping, who three times a week assemble there in worship.

For 20 years the craft has been used as a Bethel ship, and the hull is staunch, and copper fastened, so it is not without the bounds of possibility that she may be rigged and sail the seas again.

The bark has an exciting history. She was built and commanded by Capt. John Tam, who is well remembered by old whale-men, who speak of him as one of the oldest and most successful of whalers. For years he commanded a 500-ton brig, but she was sunk by a whale and then he had a bark built of live oak and hackmatack, in Belfast, Me. He and his crew made fortunes in this vessel, and in 1865 he retired. In 1869 the bark changed into a propeller, and made her appearance as an East India trader. Like most whaling ships, her hull was saturated with whale oil, which is a great preservative of wood. She was purchased by a Norwegian benevolent society to be used as a Bethel ship, and was made fast to pier 11, North River, where she lay for 17 years as a floating church for Norwegian, Danish and Swedish sailors. There she remained until 1886, when she was towed to Brooklyn and made fast to the pier at the foot of 36th Street.

MOORING GROUND AT THE WORLD'S FAIR.

Commodore George W. Gardner, of the Inter Lake Yachting Association, speaks to the point in suggesting that provision be made for the accommodation of yachts during the Fair next summer. He said that protected anchorage ground should be provided for yachts by the construction of a breakwater. The basin should be dotted with numbered buoys, to which the boats might be made fast. Persons desiring to take advantage of the anchorage ground should make application giving dimensions of their boats and they could be assigned accordingly. Space could be economized by arranging the boats according to the size. He also suggested that races should be arranged and prizes offered for boats of various classes. If that were done he believed that yachts representing all the great maritime nations would attend the Fair. "It would be a wonderful sight to see two hundred yachts anchored there at night," said Mr. Gardner. "They would, of course, be brilliantly illuminated, and it would be one of the great attractions at the Fair."

A LOCAL INSPECTORS INQUIRY.

The New York local inspectors of steam vessels Samuel G. Fairchild and Thomas H. Barrett have been trying to hold an inquiry to find out who was responsible for a collision occurring in the Harlem River.

The result of the local inspector's investigation, in which five witnesses from the tug and four from the steamboat, including the captains of each were examined, was that Captain Harper's license of Transfer No. 4 was suspended for ninety days, and Captain Peck's for forty-five days so that one was exactly half as much to blame as the other. Captain Harper's license expired thirty days after he was suspended, but Inspector G. Fairchild, when reminded of this, refused to alter the decision, Captain Harper says, and, although the law forbids the suspension of a pilot for a longer time than his license runs, the decision was allowed to remain on the books of the Board.

The New York *Herald*, of June 25th contained the following interview: "Can't anybody make me believe he didn't see the City of Norwalk's port light," said Inspector Fairchild.

"Allowing that Captain Harper was steering in the direction he testified would that have justified him in blowing two whistles and keeping ahead?" I asked.

"No, sir," was the reply; "I don't think he had any right to blow two whistles. He should have answered Captain Peck and gone to port of him."

"Yet you say in your report to the supervising inspector:—"If the green light of the City of Norwalk was alone visible to the crew of transfer No. 4, which the position of the vessels and the course of the channel would make improbable a blast of two whistles would clearly have indicated the wishes of the master of the tug?"

"I didn't say he should blow two whistles. I don't think I said two whistles," declared Inspector Fairchild. Then he hauled out the minutes of the investigation, and there was his letter with the quotation given from it.

"Well, I don't think he would have been justified in blowing two whistles," insisted the inspector, "I told Captain Peck privately what I thought of the matter."

"How do you account for the suspension of Captain Harper for ninety days when his license expired in thirty days and when the law forbids it?"

"Well, if he'll come here when his license has expired he'll get it back if there are no other charges against him."

"Did you ever hear of Captain Peck being treated for color blindness?"

"No, sir, I didn't. I have never had any knowledge of that, and if it is so I don't know it."

On the record book of the dispensary of the Marine Hospital on the Battery appears this entry, under date of May 19, 1880:

Solomon Peck, aged forty-seven: American seaman thirty-seven years, steamboat City of Norwalk; incomplete color blind, but able to distinguish between signal lights when they are in their normal condition.

"Do you believe, inspector, that it is always possible to obey every rule and regulation laid down? For instance, you have a rule providing that a pilot shall blow a whistle whenever another vessel is within half a mile of his craft. How is it possible to carry out that rule in New York harbor, where vessels are passing and repassing one another all the time?"

The inspector had to admit that this was so and that to attempt to carry out the rule would leave to confusion.

Every pilot I consulted on the subject of the local inspector's decisions was emphatic in his denunciation of the secret proceedings of the Board.

THE DICTATOR OF COMMERCE.

The commerce of the world originated in Asia; it was carried to Africa, and thence to Europe, and from Europe to America. This movement can go no further westward, for on the other side of the Pacific is China, which has successfully resisted every attempt of the European to encroach upon her domains, and India, with its teeming population of 250,000,000, so that the United States now receives the wealth of India and Asia pouring into it from the west, and the manufacturers and populations of Europe from the East, and in the near-by future she is destined to dictate to the commerce of the world and direct the channels thereof. The limit of steam power has not been reached. Electricity has just begun to offer new opportunities to commerce. We are no longer compelled to carry our factories to the water power, for by the electric wire the power may be brought to the house of the operative, and we may again see the private workman supersede the factory operative. A few cars and small vessels are moved by electricity—the forerunner of great things.

We know little of this new agency, but in future growth must be more rapid and more wonderful than that of steam. The Secretary of the Smithsonian Institute says that before the incoming of the twentieth century ærial navigation will be an established fact. "The deeper insight we obtain into the mysterious workings of nature's forces," says Siemens, "the more we are convinced that we are still standing in the vestibule of science, that an unexplored world still lies before us; and however much we may discover, we know not whether mankind will ever arrive at a full knowledge of nature."

THE contract for patrolling St. Mary's River will expire July 1, and as far as can be learned no appropriation has been made to continue the work. The matter demands the immediate attention of the department under whose care the conservancy of navigable waterways and buoys, lights and beacons are placed.

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CLEVELAND, O., JUNE 30, 1892.

THE first and only triple launch taking place from one shipyard is heralded from the yards of the American Steel Barge Co. West Superior, Wis. The general dimensions of two of these launches are 320 feet in length, 42 feet beam and 25 feet molded beam, a handsome steel tug built to the order of the shipyard completed the trio put afloat last Saturday afternoon.

SUNKEN treasure has been the *ignis fatuus* of many an enthusiast in marine lore. The Pewabic sunk in Thunder Bay, Lake Huron, after causing untold misery generations ago in loss of life called also for diver Pelkey's life last year, and is again courting similar risks although the survivors of that ill-fated catastrophe positively state that there is nothing to go after, either in the hull or cargo. Going under water to gather cases of Spanish doubloons, bars of silver, packages of specie, etc., is not the modern way of gaining a competency and scores of disastrous failures attest the wisdom of the assertion.

AT a meeting of the Finance Committee of the Lake Carriers' Association held in M. A. Bradley's office at Cleveland on Monday afternoon the following resolution was adopted: Resolved that the Lake Carriers' Association, representing the vessels engaged in trading to and from the port of Buffalo, respectfully urge both the department of war and the municipal authorities of the city of Buffalo to take prompt steps to cause the removal of the Cyclone elevator to some point in the harbor where navigation and the dock interests of Buffalo will not be interfered with or obstructed. The secretary was instructed to send copies of the resolution to the Secretary of War, the Mayor of Buffalo and the United States engineer in charge of Buffalo harbor work.

PRESIDENT HARRISON'S message to Congress, followed by Senator Davis' bill urging retaliatory tolls through the St. Mary's Falls Canal until such a time as the Dominion abolishes all Welland Canal tolls is the topic of interest in marine circles just now. International wrecking and towing privileges or joint occupation for the improvement and deepening of the St. Lawrence system of canals seem to have but little chance of being secured while discrimination and retaliation fills the air. There are no Canadian vessels trading to American ports via. the Welland Canal, so that the effect of collecting such a toll evidently favors Canadian tonnage and ports. While the St. Clair and St. Mary's Falls Canal are free to the vessels of the Dominion, it savours of discrimination, to levy tolls on American vessels using the Welland canal. The argument is held forth that the tolls for trans-shipment of cargo at ports in the United States is exacted from all tonnage passing through the Welland, but this specious reasoning falls flat when it is universally known that Canadian vessels trans-ship cargo only at Dominion ports and the United States tonnage is left to bear the brunt of the tax.

UNITED STATES WRECK COMMISSIONERS.

In accordance with an editorial published in the columns of THE MARINE RECORD on June 16th, steps are now being taken by the United States Commissioner of Navigation to ascertain the consensus of opinion among vessel owners, underwriters and others regarding the advisability of holding an official inquiry into the more serious losses and marine casualties taking place on the coasts, lakes and oceans wherein American tonnage is concerned.

It is quite possible that some owners may not grasp the subject in its entirety, and for want of a full consideration, dismiss the matter as coming more directly under the province of the board of underwriters, at least from a pecuniary point of view, and as they (the underwriters) meet their financial obligations, there need be no further steps taken. More than this, it might be argued that any inquiry would only entail additional expense, trouble and loss of time.

The foregoing would seem to be arguments of a specious and practical nature, and sufficient to dismiss the entire subject from present or future consideration, yet, if the question of determining the various causes which lead to disaster are investigated it may be seen that the best possible results would eventuate to owners, builders underwriters, and the sailing interests at large, and this, too, at a moiety of the present expense and loss of time. That is to say, the causes leading to disasters would be diminished, and existing evils, if any, remedied.

In working back to first principles, it is admitted that there is no effect without a cause, and by the same reasoning a marine casualty merits inquiry, so that a repetition of actual or impending danger may be guarded against by every known means. Taking a case in point, we note one of the recent acts of the Board of Supervising Inspectors in enforcing a clause of the rules on lights, which, for many years, had been allowed to drop into desuetude. The law as now enforced requires a bright light to be shown from the stern of steam vessels, visible all around the horizon, and to be fifteen feet above the light at the head of the vessel. Is there not an element of danger in now enforcing this long forgotten clause? The flag-staff from which the after light is exhibited is, of course, on the midship line of the steamer, so also is the smokestack, yet there is no provision made for this useless addition being elevated above the rim of the smoke-stack (or the smoke emitted therefrom) so as to be seen ahead, nor is the power of the light stated. In the case of a well known line of passenger steamers this farcical clause is made still further ridiculous by there being two smokestacks covering the range on either bow, and the masthead or forward light is made of secondary importance by being carried to a line level with the upper works. Now, the question arises, who is to take cognizance of such matters as the foregoing? Supervising inspectors cannot be expected to stultify their action by requesting a repeal of their own deliberate legislative acts, vessel owners grow weary of protesting and appealing, disasters occur, and, although it was palpable that the primal cause was due to not seeing a light or lights as cited in the foregoing case, the admiralty judge has simply to render his verdict in accordance with the rules on lights, the same indefinite result being still left for future litigation in other cases.

An investigation might in some instances prove that lights were not visible on certain dangerous bearings, or that the characteristic was not distinctive enough, as, for instance, the fixed white lights in the channel between Colbay Point and White Fish Point on Lake Superior; that the compases were deflected previous to or in the locality of the stranding; that an unusual current had swept the vessel out of her ordinary course, or that the charts were inaccurate for the position where a serious casualty had occurred; that certain anchorages showed poor holding ground. These, with the more general cases coming under the head of the steering and sailing rules," rules on lights, good judgment and seamanship, are all features which would furnish an epitome of special information and ably supplement the best efforts of those men who have brought the lake marine up to its present high standard of efficiency and prosperity.

Further than this, the time has now come when a progressive system of qualifications should be required from those desirous of holding a license of competency to pilot and navigate American tonnage. The requirements of a decade ago are not in keeping with the increased duties and responsibilities of the men who handle high-classed modern steamers, and when it is considered that the lake marine (which is now the backbone of the United States mercantile marine) may be called upon before the expiration of the next decade to use their skil on the coasts as well as the lakes, there is ample reason for close inquiry into all casualties, so that the maritime skill of lake seaman may be enhanced, and their qualifications be ruled according to the highest grade in the ordinary practice of piloting and navigating on all open waters.

Local inspectors of steam vessels are not, nor do we believe they desire to be, considered competent to rule on sail and steam casualties of serious import. The inspection service is one branch of the Federal service, and is not constituted as a court to investigate losses, either to life or property. The province of the life-saving service is to save life, not to inquire into the primal cause which engendered the risk, and it would seem that the conservancy, well being and general supervision of the United States mercantile marine is vested in the Commisssoner of Navigation, who, by virtue of his office, may show the cause and effect of all matters relating to the welfare or decadence of the mercantile marine.

The Life Saving Service is surveying for a station on Minnesota Point, Minn.

A TWENTY FOOT INTERNATIONAL CHANNEL.

Special Correspondence to The Marine Record.

TORONTO, CAN.—Beside the canal tolls question, which seems to be pre-eminent just now, a considerable press discussion is going on in Canada with reference to the deepening of the canals to 20 feet. The question has by no means been dropped. Journals of most importance here are of the opinion that private enterprise could not be relied upon to undertake so gigantic a task as improving the navigation of the Great Lakes and the Lawrence River. It is undoubtedly a scheme for international action.

Notwithstanding that upward of $56,000,000 of borrowed money has been expended on canals throughout the Dominion of Canada, the maximum navigable depth on the St. Lawrence system is merely 14 feet, which can be found in the Welland Canal. No more than 12 feet is available in the lower canals at present, but permanent improvements are underway to secure a uniform 14 foot depth from Port Colborne to Montreal. So far, so good. Undeniably it would be a beneficent undertaking to establish a twenty foot channel in continuation of the one about to be created by the active Americans from the upper lakes to Buffalo. With 20 feet of water procured between Duluth and Buffalo, "Jim" Hill declared that he could and certainly would sail grain steamships of 8,000 tons. A vessel of that size, say on a 19 foot draft, could earn as much money carrying at 63 cents per ton, as is now made by charging a dollar. While it will cost Americans a mere trifle to establish a 20 foot channel from Buffalo westward, about $3,500,000 exclusive of the expenditure on the new lock at the Soo—the deepening of the St. Lawrence system to twenty feet would entail upon Canada an outlay estimated at all the way from $75,000,000 to $125,000,000, which is more than she can afford to spend. The expenditure on her canals in times past has probably been of more service to the United States than to Canada. The deepening of the St. Lawrence system to twenty feet is a work which, if undertaken at all will have to be done jointly by the two countries. In 1865, while seeking the renewal of the reciprocity treaty, the Canadian Government formally declared that Canada was ready to enter into engagements with the view of improving the means of access to the ocean, provided the assurance be given that the trade of the Western States shall not be diverted from its natural channel by legislation. Hon. George Brown said in the debate on his own draft treaty of reciprocity that Sir John McDonald and his colleagues had gone so far as to propose thatthe "canals and inland waters of Canada should be made the joint property of the United States and Canada and be maintained at their joint expense." Some such arrangement forming part of an integrate and large measure of reciprocity must be effected before we can hope to deepen the canals.

Under the existing condition of things Canada's marine is dwindling into nothingness, which continuing it may come to be said that the Dominion owns vast waterways, but owns no ships to traverse them. One kind of parsimony has ruled in Canada long enough. J. A. C.

THE FREIGHT SITUATION.

The delay of so many craft at Chicago by the recent freshet has had the effect of making lake Michigan coal tonnage a somewhat scarce article on the freight market, and the sixty-cent rate to Chicago and Milwaukee is very stiff, although there is no prospect of the rate going higher as the scarcity is only temporary. The same cause prevents the Escanaba ore rate from getting above seventy cents, as the indications are that that port will be crowded with boats in a day or two. Some of the brokers yesterday claimed to have been paid $1.15 on several Ashland boats, and it is not improbable that that will be the quoted rate today or Friday. Other rates are unchanged at ninety-five cents on ore from Marquette to Ohio points and forty-five cents on coal to the head of lake Superior; $1.05 has been paid this week from Two Harbors to South Chicago and Georgian Bay rates on corn from Chicago advanced one to one and three-quarter cents, but this is considered only a temporary raise and no advance is looked for this week in the general rates now prevailing.

LIGHT-HOUSE APPOINTMENTS.

The Light-House Board made the following appointments on Wednesday: Mrs. Alice Nolen, keeper of the light at Gull Rock, Mich.; George W. Chamberlin, assistant light-keeper at Point Betsey, Mich.; John Kean, assistant light-keeper at Passage Island, Mich.; William H. Burns, assistant light-keeper at Poverty Island, Mich.; William R. Bennett, assistant light-keeper at Manitou, Mich.; Albin Anderson, assistant light-keeper at Marquette, Mich.; Lewis W. Bon, assistant light-keeper at Manistee, Mich.; Thomas Gardner, light-keeper at Grande Pointe Au Sable, Mich.; John Langland, Jr., light-keeper at Portage Lake Harbor, Mich.

The battleship Texas, was launched at Norfolk, Va., on Tuesday, her displacement is 6.335 tons.

BAY CITY, MICH.

Special Correspondence to The Marine Record.

Capt. Wolvin, of Duluth, vessel-broker and one of the owners of the steamer W. H. Gilbert, is in the city on business.

The steamer Langell Boys cleared from here Saturday with a cargo of lumbermen's merchandise for Deer Park Upper Peninsula.

The largest fleet of the season is now in the river. All are loading, the captains complain because of delay caused by labor trouble at Buffalo and Tonawanda.

The barges Taylor and Racine are in the dry dock for recalking, and other minor repairs.

The City of Venice, known in the yard as No. 48, was launched from Davidson's yard Wednesday, at 4 p. m. She is a beauty, her hull is painted black, deck house and cabins are white. The officers' quarters are magnificently finished in oak, ash, cherry and pine. She is at present the largest wooden boat afloat on the lakes. Her dimensions are 326 feet long, 43 feet beam, aud 26 feet moulded depth. She is supplied with all the latest appliances for facilitating the receiving and discharging of freight and handling ship. The steam power is supplied by two boilers each 11½ feet in diameter by 13 feet long, built by Riter, of Buffalo. The engines were built by S. F. Hodge & Co., of Detroit, and are triple expansion, the cylinders being 21, 33 and 54 inches in diameter, with a 42 inch stroke. Her registered tonnage is, gross, 2,108, net, 1771. She is owned by the Davidson Transportation Co. She will be commanded by Capt. Cox; at present master of the City of Berlin, and will go into the grain trade between western points and Buffalo. It is expected she will go into commission in about two weeks.

CHICAGO, ILL.

Special to The Marine Record.

The turbulent state of the river occasioned by the very heavy rains caused navigation to come almost to a standstill for several days. Harbor master Dean would not allow vessels to move and tug owners were not at all sorry as they could see nothing but accidents and damages staring them in the face if they attempted to do any towing. Tuesday the current had almost ceased to run and all day long the bridges were continually opened to allow the large fleet of vessels which had congregated at the docks and in the inner harbor to proceed up the river. The freshet in the river has been the cause of much delay and thousand of dollars have been lost by vesselmen in consequence.

Thomas Bagley, yacht builder is building a fine sloop yacht 27 feet over all, 11 feet beam, 3 feet 4 inches hold. She will be launched on Saturday.

George C. Finney & Co., supplied the schooner Homer, with a new 130 fathom, 8 inch hawser when in port on her last trip.

Grain freights are steady this week at 2 cents on wheat, 1¾ cents on corn to Buffalo.

Shipping master Biemel is doing excellent work here and supplying many vessels with non union sailors.

The schooners Harrison, Sweetheart, and Sunshine, which were cast adrift from the propeller Pringle at the time of her collision with the Morse on Lake Huron, arrived safely at Cheboygan. The steamer Arctic left this port on Tuesday evening to tow them to Milwaukee.

WILLIAMS.

SHIPPING OFFICE AT ESCANABA, MICH.

Special Correspondence to The Marine Record.

There has been this week a kind of a great buzz around the Lake Carriers' office and so quietly have their objects been attained that one would hardly believe there existed a shipping office in our midst. On Wednesday night last union sailors pulled the entire crews off the schooners Alice B. Norris, F. A. Georger, and Sumatra, which were composed of non-union men. Assisted by the trimmers they carried the men, bag and baggage to union headquarters, where they expected to use the dunnage as a leverage to compel the men to join the union." Shipping-master Nesbitt, of course, was on deck as usual, and by Thursday noon the entire outfit was put back aboard their respective vessels and were well and quietly protected from further trouble. Some difficulty was experienced in locating the men's dunnage, but Nesbitt struck a lead and with the assistance of a policeman he proceeded to the union headquarters and made the demand which was immediately accorded to. The quiet manner in which the shipping master attains his ends has a tendency to subdue the forces of the union and whilst they continue to plot and plan such outrages, just so does he meet them every turn.

The Burns Transportation Co. are fitting out the hull of the old steamer Dayan, to be used as a light-ship and fog signal on the eleven foot shoal off Peninsula Pt. So far as I can learn the Lake Carriers' Association are behind the project.

The receipts of coal for the week just passed are about 15,000 tons. This is the largest week's business in this line that has been accomplished at this port for some time, and we will, apparently, have another such week to follow it.

One steamer and two schooners were observed clearing the harbor with their "noses in the air." Why they were leaving without cargo is a mystery to us.

The steamer City of Grand Rapids, Capt. Franklin reported business as picking up unusually fast for a new route, and the run has already been proved successful. She leaves Traverse City three times per week for Escanaba, and no doubt it will soon be increased to a daily line.

The Burns Transportation Co.'s steamer Lotus, has had two break downs this week. She is out now.

The fine steel steamer Maryland has been in the record-breaking business for some time. Her latest freak was the carrying of the largest cargo of ore ever received, 3,460 tons on a 15 foot 6 inch draft. She will yet put in 3,500 tons, and then Capt. Yax can quietly claim the best.

Hart's line of steamers plying between Green Bay and Cheboygan, are doing a good business. They now land freight and passengers on the Merchants' wharf.

The ground on which the Delta Steel & Iron Manufacturing Co. will locate their plant will be drained this week and work will proceed on the building as soon as plans are completed. This will be one of the largest steel plants in the U. S., having a capacity of 500 tons daily. The York Iron Furnace will be among our numerous industries in the near future, and the Cleveland Iron Co. is looking our way with favor, but the syndicate that proposes to build all kinds of ships and do a general dry dock business, has not as yet applied for articles of incorporation.

Bittun Bros., the popular proprietors of the marine market, have just added another of those fine delivery boats to their marine delivering department and it is a daisy too. You can get your meat now, even when it is blowing a gale of wind.

Wallace Van Dyke has opened the 'Escanaba Boat Livery.' with a complete line of row and sail boats. He also has the selling agency of the famous Leaman boats, manufactured at Omro, Wis.

There are a few people on earth who have this week learned that Escanaba is the place from which to make economical ore shipments and they will not forget it soon.

UNO.

DULUTH ITEMS—WHALEBACK LAUNCHES.

DULUTH, Minn.—The great event of the marine week at the head of the lakes has been the launching of two whale steamers and a tug at the Steel Barge Co.'s Saturday afternoon. The tug Islay, 60 feet over all, 13 feet beam, 5 feet draft and 2669 tonnage, was put in the water first. This launch was not a success as the little boat caught and went down badly, half filling with water. Second came the big package freighter Washburn, and last the Pillsbury. Both are slightly different from the previous whale models, as they have between decks, side ports and facilities for freight handling in packages. They are each 322 feet long, 42 beam and 25 deep. Each has a cargo capacity, between Gladstone and Buffalo, of about 3,500 tons. The Washburn will be ready for commission in two weeks. She will be commanded by Capt. T. Macfarlane, who has for years commanded the Lehigh fleet. The Pillsbury is not so far along and cannot be ready for business for a month. Capt. Wm. Cravers will pull her bells. The tug Islay will be used by the Barge Co. as a tender to the dry dock and for light harbor purposes. She is named for Capt. McDougall's birthplace in Scotland.

There have been several tug accidents the past week. The tug Danforth, of the dredging firm of Williams, Dougherty & Upham, caught fire and was totally destroyed while at work near the root of Minnesota Point. She is to be replaced by a larger and finer boat the firm is now purchasing. The tug A. C. Adams, of the Smith-Fee Line, was wrecked in the harbor Sunday. She will be raised, but the loss is large. Capt. Barker, the dredge contractor, has bought a new and large tug in Buffalo, which will be added to the harbor fleet in a few days.

Where the Duluth & Winnipeg road is putting in its ore dock, on Allouez Bay, the water is so shallow—1½ feet—that no pile driver has so far been able to work on the water side, and all the driving is being done with one machine, run out from the shore. Two dredges are steadily at work, but they have not yet been able to make a passage for pile scows, much less for vessels. This will delay the completion of this dock and the shipment of Mesaba ores until the docks on the Duluth side are built. The shallow water of the Allouez Bay will do much to prevent that district cutting much figure as a harbor, especially when the head of the lake has a hundred miles of dockage where no dredging to speak of is required.

But little delay has been had in iron shipments from the Duluth & Iron Range road, despite the big strike at the Minnesota mine. Last week's shipments were 34,000 gross tons, of which the Chandler furnished nearly two-thirds, because of the strike. There is now about 35,000 tons in the docks and the movement for the year to date has been about 30,000 tons.

W.

TORONTO, CAN.

The new steamer Garden City will make her trial trip on Wednesday and commence her regular trips to St. Catherine on the 1st. July. Capt. Lafrance, late of the Carmona will be in command.

All the excursion steamers are doing a fair business but a great rush is expected after this week. The steamers Chicora and Cibola have been kept very busy during the past two weeks conveying the volunteers to and from the annual camp at Niagara and also in handling the many delegates to the Knights of St. John convention which is being held in this city.

The steamer Algerian, which had a collision with the steamer Tecumseh a couple of weeks ago, arrived in the harbor on Tuesday on her first trip since the accident.

Owing to the heavy rains, the water in the harbor has risen considerable so that vessels have no trouble in coming in with a twelve foot draught. Steamers from Montreal are also able to load to the full depths of the lower canals, nine feet. The steamer Persia arrived from Montreal on Sunday night with a full load of freight and a large passenger list.

The tug Active having in tow the schooners Gaskin and Glenora met with an accident when going down Lake Ontario last Sunday morning. Her shaft broke away from its bearings and the piston rod went up, and striking the cylinder cover broke it into many pieces and injured the connecting rod The steamer Ocean arrived at the scene shortly after the accident occurred but as the tow were anchored all right she went on to Kingston and reported the accident and the tug Olivia Gordon went out and towed them into port.

The propeller Cuba arrived on Tuesday from Montreal and cleared for Chicago with a large cargo of merchandise and a number of passengers.

The meteorological office of Toronto has supplied bottles and bottle papers to the captains of all the steamers trading out of the port to be used in the survey of the lake currents being made by the Weather Bureau of the United States.

SPARTA.

A WHALER BOUND TO CHICAGO.

Special Correspondence to The Marine Record.

OGDENSBURG, N. Y:—The famous whaling bark "Progress," on her way from New Bedford (Conn.) to Chicago, to take part in the exhibit at the Columbian exposition, arrived at Ogdensburg, Saturday, June 24, having left New Bedford the 8th. The "Progress" has faced all the perils of the sea, and has probably a history that cannot be surpassed by any craft at the present day. She is of three hundred and fifty-eight tons burden, and was built at Westerly, R. I., in 1843, christened the "Charles Phelps" and owned by Charles P. Williams until 1861, when she was sold to the United States government for a store-ship, and used as such during the Civil War. In 1865 she was sold by the government at auction and became the property of William O. Brownell, of New Bedford. She was fitted for the Arctic under command of Capt. James Dowden, and continued in this business until she was laid up. She was one of five ships which, in 1871, at the time of the memorable disaster to the fleet, which caused the abandonment of thirty-three ships, brought down one thousand two hundred officers and men belonging to the wrecked vessels. Messrs Bartlett sent her on one voyage of five seasons to the Arctic, and she earned for them $200,000, and in one year she was second in all the fleet in getting oil and bone, taking one thousand, six hundred and fifty barrels of oil and thirty-one thousand pounds of bone, making for her owners the sum of $80,000. During this time she was commanded by Capt. Ezra B. Lapham. She was laid up at New Bedford for nearly ten years, but is still a staunch, seaworthy vessel, notwithstanding her nearly half a century of service. She is famed as a "lucky" ship, and her escape in 1871 was almost miraculous. At that time, while in the Arctic, she was in the ice floes for forty-six hours at a time, when her commander expected her to be crushed at any moment, The old whaler is commanded by Capt. Gifford.

And now she has been purchased by a syndicate in Chicago, who have rigged and manned her with experienced whalemen, as if for a whaling voyage. On her decks are the tri-pots and other apparatus used in rendering whaleback fat into oil. In order to facilitate coming under the bridge near Montreal, it was necessary to send down her topmasts: They will be shipped here, and after taking 200 tons of ballast, which was taken out and towed on a barge astern, to allow her to pass through the lower canals, she will leave for Buffalo, where she will receive show-cases, and all the available interior will be a museum of objects in the whaling line, from a whale's head and bone to harpoon and lances, and such will be her exhibition on the lakes.

ANOTHER SERIOUS COLLISION.

The propeller John C. Pringle, of Buffalo, collided with the schooner Fred A. Morse, of Cleveland, twelve miles southeast of Thunder Bay Island, Lake Huron, early on Sunday morning. The Morse was cut down below the water line and sank in 35 fathoms in less than fifteen minutes. The crew saved themselves by taking to a boat and were afterwards picked up by the H. A. Tuttle. One woman aboard the Morse was badly injured. The Morse was bound down, laden with iron ore, and was in tow of the propeller Horace A. Tuttle, which also had two other schooners. The Tuttle proceeded on her way. The Pringle was bound from Buffalo to Chicago with a cargo of coal and Italian marble. She had in tow the schooners Harrison, Sweetheart, and Sunshine. The Pringle's bow is badly damaged, and she lost both anchors and her foremast, the damage will amount to several thousand dollars. The Pringle started for Sand Beach, but the seas washed in through a hole in her bow, she put about and made Alpena. At the time of the collision the mate was in charge of the Pringle. Captain Bonnah was in his bunk, and when he ran out on deck was knocked overboard by a falling spar. His left hand was injured, but he managed to keep afloat for an hour, when he was picked up by a boat from the Tuttle. He remained on board of her until daylight, when he was transferred on board his own boat. He was almost dead when picked up, and wishes to thank the officers of the Tuttle for their kindness. It was raining at the time of the collision and there was some fog, but further than this the mate will make no statement as to the cause of the collision.

Maritime Law.

U. S. District Court, Southern District of New York.

PERSONAL INJURIES—DEFECTIVE ROPE—KNOWLEDGE OF MATE OF VESSEL—ACQUIESCENCE OF SAILOR.

BROWN. J. While libelant, a seaman, was employed scraping the mainmast of the Julia Fowler, on a triangle surrounding the mast, the rope holding the triangle broke, precipitating libelant to the deck, and causing injuries, to recover for which this suit was brought. The evidence showed that the rope was old and spliced, and that the attention of the mate, who rigged the triangle and was in charge of the work, was called to its character before the accident. It also appeared that all the men considered the rope of doubtful sufficiency but that they continued work without objection, without demanding a new rope, which was no evidence to show it would not have been furnished them. Held, that this was an acquiescence in the wrongful act of the mate, charging libelant also with negligence. One-half of his damages were fixed at $400. Feb. 2, 1882.

Circuit Court of Appeals, Second Circuit. Jan. 18, 1892.

1. COLLISION—TUGS AND TOWS—VESSEL AT ANCHOR—CHANGE OF COURSE.

A tug, with a ship in tow on a hawser, gave a rank sheer in an attempt to pass from one side to the other of a dredge, and cleared in midstream, when so near the latter thet, although the ship instantly put the helm hard over to follow the tug, she came in collision with the dredge. Held, that the tug was liable.

2. APPEALS—PARTY NOT APPEALING CANNOT BE HEARD.

Where libelant has not appealed, he cannot contend in this court that certain items of his loss were improperly disallowed in the court below. 41 Fed. Rep. 57, affirmed.

Circuit Court of Appeals, Fourth Circuit. April 12, 1892.

1. COLLISION—STEAM AND SAIL—LIGHTS.

A steamer moving at midnight in the open sea, on a course S. W. ½ W., and, approaching a schooner moving on a course N. E. by E., passes the point of intersection of course just before the schooner reaches it, and, seeing the schooner's green light, put her helm hard a-port, thereby producing a collision with the schooner, held, that the steamer was in fault.

2. SAME—INTERNATIONAL RULES.

Section 4234, Rev. St. U. S., requiring sail-vessels to show torch-lights on the approach of steamers at night, does no apply, since the adoption of the international rules of navigation of 1885, to vessels upon the high seas or coast-waters.

3. SAME—PARALLEL AND OBLIQUE COURSES.

A maneuver which would have been a proper one as to vessels approaching each other on parallel courses may be a fatal one if the vessels are moving on courses obliquely intersecting.

Before Fuller, Chief Justice, and Hughes, District Judge.

The eminent jurists in their syllabus of the case takes occasion to state that it is insisted, on behalf of the Lepanto, that her failure to discover the relative situations of the two vessels was largely owing to the fault of those on the schooner in not showing a flash-light, as required by section 4234 of the Revised Statutes. It is answered, on the schooner's behalf, that in point of fact she was prepared to exhibit a flash-light, and did actually ignite it, but put it out immediately after doing so on seeing the green light of the steamer, which gave assurance that that vessel was about to cross her course and go clear.

It is needless to deal here with this issue of fact. The international rules of navigation, enacted into laws by the act of congress of March 3, 1885, do not require flash-lights to be used by vessels upon the high seas and coast-waters of the United States. Article 2 of those rules declares that no other lights than those mentioned in the articles of the act relating to lights shall be carried, and none of those articles mention flash-lights; and section 2 of the act repeals all laws and parts of laws inconsistent with those articles. Moreover, the act of 1884, establishing international rules for sea-going and coasting vessels, omits section 4234 of the Revised Statutes. It follows, therefore, that if the schooner Bronson did not display a flash-light on the approach of the Lepanto, she was not in fault on that score. The decree of the circuit court is affirmed, with interest, and costs of the appeal to be paid by appellant.

A NEW ILLUMINANT FOR LIGHT-HOUSES.

The Lighthouse Board has information relating to a magnesium flash light devised by Prof. Schirm, of Berlin, Germany. It is produced by blowing a small quantity of magnesium powder with a current of air which has previously passed through pumice stone saturated with benzine into a benzine gas flame. With the use of ten centigrams of magnesium powder, it is stated that a flash of 400,000 candle power can be seen on a clear sunshiny day at a distance of six miles. This flash light, in addition to its being very much more powerful than any known electric light, it is stated, is far better adapted to lighthouse purposes on account of its rays lying in the red and yellow portions of the spectrum instead of in the blue portions as in the case with the electric light. The Lighthouse Board. after an examination of the report sent to it through the courtesy of Capt. Bingham, Corps of Engineers, military attache at Berlin, was so favorably impressed with the light that it was decided to order an apparatus, to be used in experiments at the general depot at at Staten Island, N. Y. It is expected that this apparatus will arrive in the course of the next two months.

AN INQUIRY INTO WRECKS AND CASUALTIES.

The following communication, which has been addressed to all members of the Lake Carriers Association, Boards of Navigation and Transportation of the United States, is self explanatory:

TREASURY DEPARTMENT,
BUREAU OF NAVIGATION,
WASHINGTON, D. C., June 24, 1892.

To The Marine Record.

Due regard for the protection of life and property seems to require that an investigation should be made by the government as to the causes of marine disasters, collisions, accidents, etc., in the cases of all vessels of the United States, for the information and benefit of mariners, and especially with a view to prevent a repetition of similar mishaps. No official body besides the Federal Courts, is particularly charged with such inquiries, except to a certain extent in regard to steam vessels, and to cases in which reports are made for the use of the life saving service. At present it does not appear that mariners generally, outside of the private persons especially concerned, have any certain means of learning all the facts which may have led to collisions, or strandings, or other disasters to vessels. If a proper official body constituting a board, at the expense of the government, could have power to investigate the various accidents; to send for witnesses and papers; to administer oaths; and to make a thorough investigation, the facts in regard to all cases might be brought out and notice given to mariners generally, so as to be of material use to them, and so that a knowledge of the causes of a disaster would not, as is now the case, be confined to the eye-witnesses, underwriters, masters, and owners, directly interested.

Your views relative to the matter are requested.

Respectfully yours,
E. C. O'BRIEN,
Commissioner of Navigation.

OBSERVERS OF LAKE CURRENTS AND METEOROLOGY.

WASHINGTON, D. C.—A number of bottle papers used in ascertaining the set and drift of lake currents has drifted ashore during the month of June and after being picked up were duly forwarded to the office of the Weather Bureau. The names of the captains engaged in the work of distribution as shown by these recovered bottles are as follows: Capt. C. Mason, China, Capt. M. Lightbody, City of Alpena, Capt. Robert Murray, Vanderbilt; Mr. Geo. R. Downs, U. S. S. Michigan; Capt. D. A. McLachlan, City of Cleveland; Capt. G. Grasen, Gordon Campbell; Captain Robert Smith, Japan; Capt. George Robertson, schooner M. A. Lydon; Capt. James Kennedy, Badger State; Capt. A. E. Huff, Philadelphia; Capt. A. Keith, schooner E. Fisher; Capt. M. W. Gotham, Briton, Capt. P. Fleming, tug Seymour; Capt. H. J. Slyfield, City of Mackinac; F. D. Osborn, India.

In several cases two or more bottle papers are from the same vessel making a list of forty-five "messages from the sea" indicating the drift of the waters.

DAILY OBSERVATIONS.—Among the daily meteorological reports sent in for the month of May are those of Capt. George Scott, Light-House steamer Marigold, Capt. R. Young, Cuba; Capt. H. Leisk, P. J. Ralph; Capt. N. B. Nelson, Geo. T. Hope; Mr. George R. Downs, U. S. S. Michigan; Capt. Danial Buie, Wallula; Charles Kimball, lightkeeper, White Fish Point, Capt. Wm. Young, Philip Minch; Capt. John Cochrane, Marian; Capt. J. B. Hall, Corona; Capt. John M. Gee, City of Racine; Capt. John Baxter, lighthouse tender Haze; Capt. C. W. Lockwood, schooner B. L. Pennington; Capt. A. B. Drake, Brazil; Capt. John Leonard, Mecosta; Capt. William W. Collins, Wm. Edwards.

U. S. NAVY REGULATION CIRCULAR NO. 106.

NAVY DEPARTMENT, WASHINGTON, D. C., JUNE 16, 1892.

From the following new order, it may be seen that the U. S. Navy is being controlled by men of practical training.

1. Commanding officers will be ready at all times to forward immediately, when called, for the statements of work in all departments needed upon the vessels under their command or their equipage.

2. Whenever a ship which has been cruising outside the waters of the United States returns to a United States port, her commanding officer will, at the earliest possible moment, without waiting for special instructions to that effect, transmit to the Assistant Secretary a report of work required upon the vessel.

3. The items of work under each Bureau will be stated in four classes: First, immediate repairs necessary for cruising efficiency, for the prevention of deterioration, or sanitary considerations; second, further repairs which it is desirable to have made whenever the service of the vessel can be spared for a sufficient length of time: third, necessary alterations, and, fourth, alterations desirable, but not necessary. In each case the reason for asking for the work will be stated.

4. The report will not be delayed until arrival at a navy-yard, but each Commanding Officer will transmit it as soon as he is aware that his vessel will shortly return to the United States.

5. Whenever reports of needed repairs are sent from ships in the Pacific to the Department or to any Bureau, with or without drawings and specifications of the work to be done, a duplicate of the report with all drawings and specifiations will be forwarded by the same mail to the Navy-yard, Mare Island. B. F. Tracy, Secretary of the Navy.

ON THE ORIGIN AND PRODUCTION OF WIRE ROPE.

The manufacture of those metallic filaments or shreds, known as wire, is one of considerable antiquity, and has been traced by good authorities as far back as the period of early Egypt. Gold wire is mentioned in connection with the decorations of the Sacerdotal robes of Aaron, whilst metallic shreds—it is recorded—have been actually discovered that date as distant as 1700 B. C. A specimen of wire made by the Ninevites some 800 years B. C. is exhibited at the Kensington Museum. Homer and Pliny referred to similar productions in their early writings. Metal heads, with imitation hair of wire, recovered from the ruins of Herculaneum are in the Portici Museum. From such remote eras up to the fourteenth century, wire in its general acceptation was produced by hammering out strips of metal, and not by the process of "drawing" as practiced at the present time. In the middle ages this industry was extensively pursued, and the artificers thus engaged were termed, in the trade, "wire-smiths," but in the earliest days of the manufacture, gold, silver, and bronze appear to have been the only metals so treated. It is, however, fairly substantiated by technical records that the present method of "drawing wire" was practiced in the Lenne district of Germany during the fourteenth century, a treaties upon "wire rope its manufacture and uses" by J. Bucknell Smith states that in the histories of Augsburg and Nuremberg, dated 1351 and 1369 respectively, the term "drahtzieher" (wire-drawer,) mentioned in connection with this industry, so that it is reasonable to infer that the "drawplate" was known and used at this period; possibly the first wire-drawing mill was that erected at Nuremberg by a man named Rudolf shortly after the time above mentioned, or when the art of hand drawing wire had reached some degree of excellence. At least, so the writings of Conrad Celtes, of 1490, lead us to understand.

About the year 1500 the credit of "wire-drawing" was ascribed in France to one Richard Archal, and even now some classes of wire produced in this country are known as "fil d'Archal." According to Beckmann's "History of Inventions," published in London, 1817, as little was definitely known about the claims of Archal as those attributed to Rudolf of Nuremberg. It was not, however, until about 1565 that machine drawn wire was produced in Great Britain.

In Germany, as early as 1750, Mr. Felten, of the since eminent firm of Felten and Guilleaume, laid the foundation of their present extensive factories near Cologne. In America, perhaps no firm is more deservedly well known than that of Messrs. Roebling & Sons, of Trenton, who commenced business in 1849. Messrs. Washburn and Moen, however, commenced wire-drawing in the States some eighteen years previously, whilst the Trenton Iron Company must also be reckoned amongst the earliest founders of the wire industry in the states.

At the present time Belgium furnishes a considerable quantity of wire products to export markets. Outside the United States, the world's supply of plain and worked wire of various kinds is practically derived from Great Britain, Germany, and Belgium, and not even Australia, with all her consumption, has as yet deemed it desirable to establish wire mills of her own.

The first submarine telegraph cable was laid in 1850 from Dover to Calais, a distance of twenty-five miles, and so invaluable were its demonstrations of utility, that after the construction of numerous others of increasing importance, a cable was laid between Ireland and America in 1858, a distance of over 2,000 miles: it was through this cable that England sent the first telegraphic message to President Buchanan.

Since the practical inauguration of electric traction for street railways, over 1500 miles of overhead copper conductors have been erected in some of the principal cities of the United States within the last three years.

Those readers who have had an opportunity of seeing the stupendous and elegant suspension bridges across the Niagara River, and that from New York to Brooklyn, are familiar with beautiful and colossal examples of the uses of wire for structural purposes. The last great achievement of engineering skill with which the name of Roebling will always remain inseparable, presents a clear or main river span of 1600 feet, at an elevation of 135 feet above high water mark, the huge suspension cables being composed of 6400 separate wires. Again, the railway across this structure is a typical illustration, amongst many in the United States, of the use of wire ropes for traction purposes.

Somewhat recently Sir William Thomson has employed steel wire of high breaking strains in connection with his ingenious and extensively used deep sea sounding apparatus.

THE old whaler Progress, which is to be exhibited at the World's Fair has arrived at Ogdensburg. The Progress left New Bedford, the home of the old time and famous American whalers, on June 8th., in tow of the tug Right Arm. She reached Quebec after a fair passage, the only heavy weather being encountered in the Bay of Funday. She will tow through to Chicago, and while on the way will be fitted up with the old time whaling apparatus which is at present in her hold. She will be used as a museum ship at the World's Fair, the projectors of the enterprise having already secured a large supply of whaling and Arctic relics.

THE PURCHASE OF THE INMAN LINERS.

It may require further diplomatic negotiations before the action of the present Congress is ratified in the course recently authorized for the purchase of the Inman Line steamers City of Paris and City of New York, both admittedly being the very choice of Trans-Atlantic tonnage. Yet, although 90 per cent of the capital in the Inman and International Company is owned by citizens of the United States, these latest greyhounds were built in Scotland and registered in England, while the company ostensibly owning them was, perforce a British company. The vessels were not only built and registered in Great Britain, but were tendered for and accepted as subsidised armed cruisers to the English Admiralty. The idea of the subvention of armed cruisers was evolved in that country because of the sale of the Stirling Castle and the America to the Italians. It was pointed out that vessels of the class of the City of Paris and City of Rome were of the utmost value in war time, and that though the fastest vessels afloat all flew the British ensign they might at any time, when a war scare arose, be purchased by foreigners from the private individuals who owned them, and it might be that they would be actually used against the power that had constructed them.

The Liverpool *Journal of Commerce* in a recent editorial points out that, to remedy this, to prevent the English Government having, on threat of war, to buy vessels it did not want and could not use in time of peace, it was resolved to make many of the principal merchantmen afloat "armed cruisers." A retaining fee of 15s per annum per ton gross was to be paid in respect of these vessels, and in consideration of this payment the companies which accepted it in respect of their first-class vessels built them on approved Admiralty designs, so as to enable them not only to carry guns, but also to withstand fire by efficient subdivision, and by the position of the boilers, engines, and steering gear below the waterline. Not only were the designs of the vessels made in accordance with Admiralty requirements, but the manning of the vessels was carried out to suit their ideas. The commander was to be a lieutenant in the Royal Naval Reserve, and a certain proportion of the crew were also to belong to that body. In addition to this, the companies engaged to hold the vessels at the disposition of the Admiralty, for purchase or charter, on certain agreed terms, and, to put it generally, the companies placed themselves in a position auxiliary to the Admiralty, and their allegiance, in honor at all events, was due to the Admiralty and the Crown to an extent to which commercial enterprises do not always feel themselves bound to go.

Providing that diplomatic negotiations are carried on successfully and these two large steamers are enrolled under the stars and stripes the little annual subsidy of £8,000 in respect of each vessel goes by the board. In return they will get the $4 per mile for every mile on an eastern voyage run at 20 knots, which was granted by the Mail Subsidy Act to American vessels. This amounts to, say $12,000 a voyage, or $144,000. That is £28.800 a year for each vessel, less, we presume, the amount they already earn by carrying eastward mails. This is a distinct gain in the case of the two present vessels of something approaching £20,000, or $100,009 a year as long as they are able to continue running. When they require extensive repairs however, the extra cost of these will begin to cut into the profit, and in the case of the new vessels—not only the two new ones already spoken of, but all future built ships they will have to pay 50 per cent more in America than on the Clyde for construction. That is to say, instead of costing £350,000 each they will cost £500,000, and reckoning insurance, interest and depreciation, this extra capital outlay will take away all the advantages gained by the transfer when the vessels are running to their utmost capacity. But interest, insurance and depreciation run on whether a vessel works or is idle, whilst subsidy is only paid for a vessel at work. In this strain the tLiverpool *Journal of Commerce* appears to think that the United States are playing a losing game all round and future developments will only decide such to be the case.

Now whether, it is by purchase or otherwise, the United States desire to have a merchant marine commensurate with the importance of the country, foreign built tonnage only in so far as it is a stepping stone to accomplish this end is or will be only permissible for oversea tonnage, and while the coast and lake vessels are now equal to the best comparative tonnage afloat, ocean tonnage must and will be brought up to the same standard.

CAPT. JAMES REID, the well-known Bay City wrecker has released the Minnehaha from the rocks at Detour. She is in fair shape, has been well patched up, and has left Detour for Cleveland in tow of the Sea Gull. She will be thoroughly repaired by the Ship Owners' Dry Dock Co. Work on the Golden Fleece, ashore off Dunkirk N. Y., is not being hurried. She is in good shape and can be released at the captain's convenience. The tug Geo. H. Parker, after lying for some years at Algonac, has been bought by Capt. Reid and taken to Bay City, where she is receiving a thorough rebuild, a new boiler, steam steerer, and overhaul of her engine, and is now ready for service, valued at $22,000. She is about the size of the Castle and has plenty of power.

THE enterprise shown by *Seaboard* of New York in illustrating the wreck chart of the Great Lakes recently published by the United States Weather Bureau is highly commendable. This chart with the mass of *data* so closely worked up is we understand the first wreck chart of the lakes ever printed and it is probably the only wreck chart ever published concerning any waters of the United States.

THE BEST PROPELLER WHEELS.

In an article on Propeller Wheels, the *Marine Engineer* has the following to say on this important question:

"The subject of the best propeller for steamers of various draft and midship section is still as far as ever from scientific solution. It is humiliating to read that, as a matter of coruse, in fitting Government vessels with propellers it is recorded that a certain gunboat will first be tested with her own twin propellers and then with the propellers of a sister gunboat. If this proves to be of any importance as a comparison, why should not the various tests go on indefinitely? Much attention has lately been drawn to the advantages of a propeller with adjustable blades, which may be reversed without reversing the engines, and much as may be the advantages of a propeller which may be reversed instantaneously from the bridge without affecting the speed of or jarring the engines, we think that an equal advantage may accrue from the use of such propellers from the power they afford to adjust the pitch of the screw to that exact amount which proves in practice the best for the higest speed in certain conditions. In fact, if the design of a propeller is so much a matter of guess or adjustment it might pay well to test steamers with an adjustable propeller merely to ascertain with what pitch the best results are obtained, and then to cast the fixed propeller according to such acquired information. Unfortunately this covers only the question of pitch, and still leaves the diameter and area of blades a definite and unexperimented-upon quality.

It is hoped, however, that the ingenuity of marine engineers might be equal to designing a test propeller in which even these qualities might be adjustable. We should then be much nearer to arriving at the knowledge of the laws which ought to govern such proportions. We have, however, heard rumors from a good authentic source that the ordinary open bladed propellers are quite out of the case for best efficiency, when compared with turbine pumps invented as propelling engines. We were astonished to hear that the average slip of ordinary open bladed propellers, as compared with their theoretical efficiency, averaged as much as 50 per cent. We should like to hear what any of our readers can say upon this subject as a result of their practical experience. If it be so, we say that it is a disgrace to our engineering proficiency in the design of this apparatus until the slip is brought down as low as 15 or 20 per cent. One great point in which a turbine propeller will have a great advantage over an open-bladed propeller is that the draft of water to the turbine propeller may be induced from the sides or from underneath the hull of the vessel, that is in any direction other than that of the motion of the hull as taken by an open screw propeller, and we understand that this point in giving unbroken water, scores in itself a great advantage to the propeller so fed. We are waiting with interest further developments of the efficiency of turbine propellers, as compared with open bladed screws.

THE loss to vessel interests through the flood in Chicago River is now estimated at $600,000.

EMMONS BLAINE, President and Treasurer.
WALTER F. COBB, Vice President.

W. I. BABCOCK, Manager.
O. R. SINCLAIR, Secretary and Asst. Treas.

Chicago Ship Building Company,

STEEL STEAM-SHIP BUILDERS.

101st Street and Calumet River, COLEHOUR, ILL.

INCORPORATED 1794.

Insurance Company of North America.

CAPITAL, Paid up in Cash, - - $3,000,000.00
ASSETS, - - - - - - 9,273,220.00

CHARLES PLATT, President. WILLIAM A. PLATT, Vice-President.
EUGENE L. ELLISON, 2nd Vice-President. GREVILLE E FRYER, Sec'y & Treas.
JOHN H. ATWOOD, Assistant Secretary.

Lake Marine Department.

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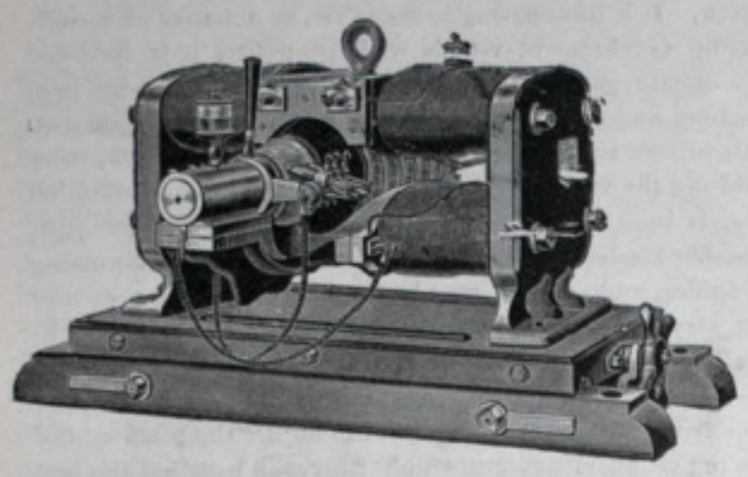

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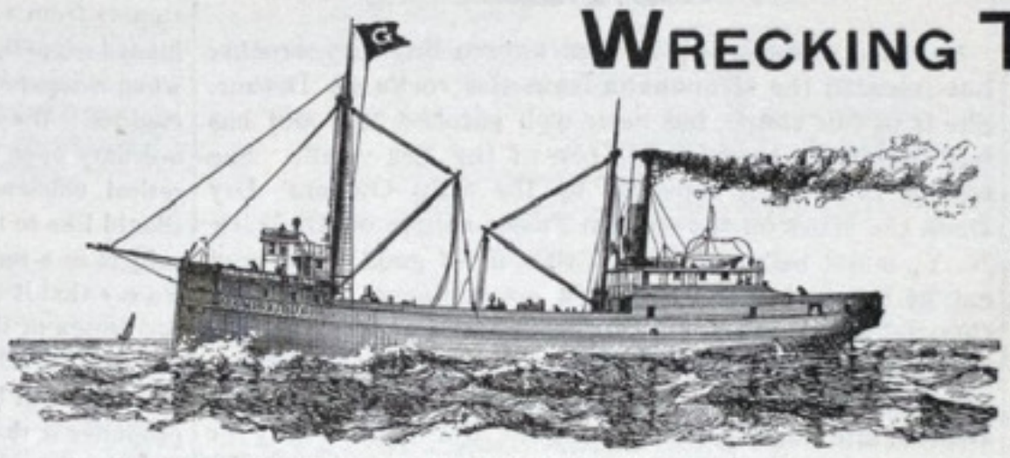

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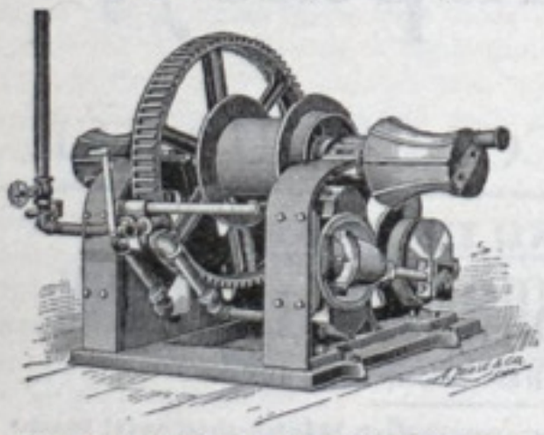

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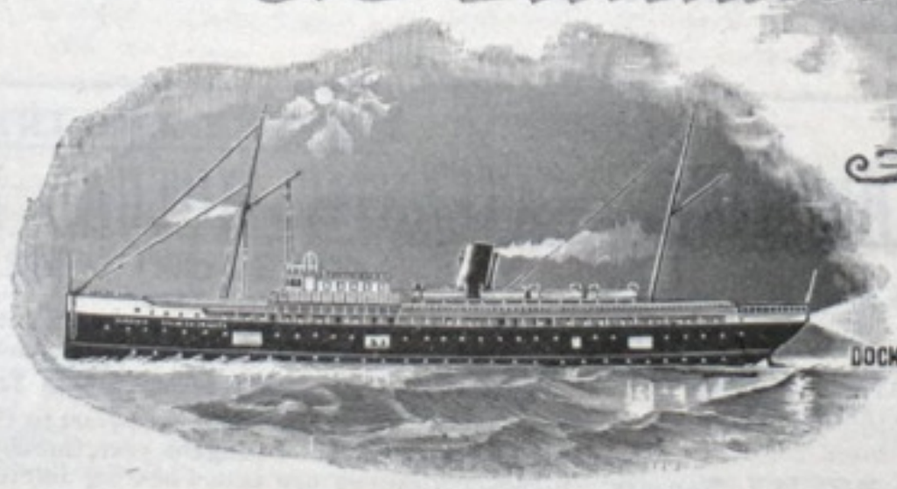

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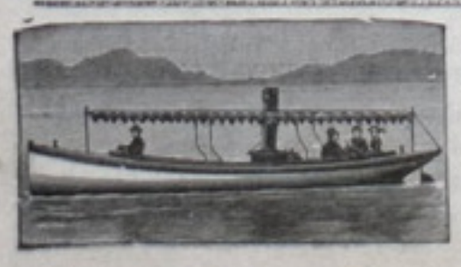

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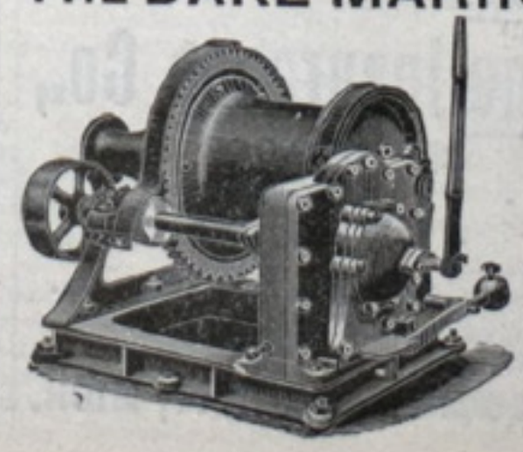

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